

Middle School Mathematics I Essential Curriculum

UNIT I:

Standard 6.0 Knowledge of Number Relationships and Computation/Arithmetic

Goal 1. The student will apply knowledge of rational numbers and place value.

Objectives - The student be able to:

1. Read, write, and represent whole numbers.
2. Simplify numeric expressions using the properties of addition and multiplication.
3. Compare and order fractions, decimals alone or mixed together, with or without relational symbols ($<$, $>$, $=$).
4. Identify and determine equivalent forms of fractions as decimals, as percents, and as ratios.

Goal 2. The student will analyze number relations and compute.

Objectives - The student be able to:

1. Determine the approximate product and quotients of decimals.
2. Multiply decimals.
3. Divide decimals.
4. Add and subtract fractions and mixed numbers and express answers in simplest form.
5. Multiply fractions and mixed numbers and express in simplest form.
6. Divide fractions and mixed numbers.

Standard 2.0 Knowledge of Geometry

Goal 1: The student will measure in customary and metric units.

Objectives - The student be able to:

1. Select and use appropriate tools and units.

UNIT II:

Standard 6.0 Knowledge of Number Relationships and Computation/Arithmetic

Goal 1. The student will analyze ratios, proportions, and percents.

Objectives - The student be able to:

1. Determine and use rates, unit rates, and percents as ratios in the context of a problem.
2. Write and solve proportions.
3. Determine discounts and sales tax.

Goal 2. The student will analyze number relations and compute.

Objectives - The student be able to:

1. Determine a percent of a whole number.

UNIT III:

Standard 1.0 Knowledge of Algebra, Patterns, or Functions

Goal 2. The student will locate points on a number line and in a coordinate plane.

Objectives - The student be able to:

1. Represent rational numbers on a number line.
2. Graph ordered pairs in a coordinate plane.

Standard 6.0 Knowledge of Number Relationships and Computation/Arithmetic

Goal 3. The student will apply knowledge of rational numbers and place value.

Objectives - The student be able to:

1. Read, write, and represent integers.
2. Compare and order integers.

UNIT IV:

Standard 1.0 Knowledge of Algebra, Patterns, or Functions

Goal 3. The student will write and evaluate expressions.

Objectives - The student be able to:

1. Evaluate numeric expressions using the order of operations.
2. Evaluate an algebraic expression.
3. Represent algebraic expressions using physical models, manipulatives, and drawings.
4. Write an algebraic expression to represent unknown quantities.

Goal 4. The student will identify, write, solve, and apply equations and inequalities.

Objectives - The student be able to:

1. Identify and write equations and inequalities to represent relationships.
2. Determine the unknown in a linear equation.
3. Solve for the unknown in a one-step inequality.
4. Identify or graph solutions of a one-step inequality on a number line.
5. Apply given formulas to a problem solving situation.

UNIT V:

Standard 1.0 Knowledge of Algebra, Patterns, or Functions

Goal 1. The student will identify, describe, extend, and create numeric patterns and functions..

Objectives - The student be able to:

1. Identify and describe sequences represented by a physical model or in a function table.
2. Interpret and write a rule for a one-operation (+, -, \times , \div) function table.
3. Complete a function table given a two-operation rule.

Goal 2. The student will locate points on a number line and in a coordinate plane.

Objectives - The student be able to:

1. Graph linear data from a function table.

Goal 5. The student will analyze linear relationships.

Objectives - The student be able to:

1. Identify and describe the change represented in a graph.
2. Translate the graph of a linear relationship onto a table of values that illustrates the type of change.

UNIT VI:

Standard 2.0 Knowledge of Geometry

Goal 1: The student will analyze the properties of plane geometric figures.

Objectives - The student be able to:

1. Identify, describe, and label points, lines, rays, line segments, vertices, angles, and planes using correct symbolic notation.
2. Identify and describe line segments.
3. Identify and describe the parts of a circle.

Goal 2: The student will analyze geometric relationships.

Objectives - The student be able to:

1. Compare and classify triangles by sides.
2. Compare and classify triangles by angle measure.
3. Determine a third angle measure of a triangle given two angle measures.
4. Identify and compare the relationship between parts of a circle.

Goal 3: The student will represent plane geometric figures.

Objectives - The student be able to:

1. Draw geometric figures using a variety of tools.
2. Identify or describe angle relationships.
3. Identify, describe, and draw a polygon.

Goal 4: The student will analyze congruent figures.

Objectives - The student be able to:

1. Identify and describe congruent polygons and their corresponding parts.

Goal 5: The student will analyze a transformation in a coordinate plane.

Objectives - The student be able to:

1. Plot the result of one transformation (translation, reflection, rotation) on a coordinate plane.

UNIT VII:

Standard 3.0 Knowledge of Measurement

Goal 1. The student will estimate and apply measurement formulas.

Objectives - The student be able to:

1. Estimate and determine the area of a polygon.
2. Estimate and determine the area of a composite figure.
3. Estimate and determine the volume of a rectangular prism.
4. Determine the missing dimension of rectangles.
5. Determine the missing dimension of a quadrilateral given the perimeter and length of a side.

UNIT VIII:

Standard 4.0 Knowledge of Statistics

Goal 1. The student will organize and display data.

Objectives - The student be able to:

1. Interpret circle graphs.
2. Organize and display data using frequency tables, stem-and-leaf plots, and back-to-back stem-and-leaf plots.
3. Organize, display, and interpret bar and line graphs.

Goal 2. The student will describe a set of data.

Objectives - The student be able to:

1. Determine the range of a given set of data.
2. Analyze measures of central tendency to determine or apply mean, median, mode.
3. Recognize and analyze faulty interpretation or representation of data.
4. Determine the best choice of data display.
5. Analyze misleading data representation.

UNIT IX:

Standard 5.0 Knowledge of Probability

Goal 1. The student will identify sample space.

Objectives - The student be able to:

1. Determine the number of outcomes.

Goal 2. The student will determine the probability of an event comprised of no more than 2 independent events.

Objectives - The student be able to:

1. Express the probability of an event as a fraction, a decimal, or a percent.

Goal 3. The student will analyze the results of a survey or simulation.

Objectives - The student be able to:

1. Make predictions and express the probability of the results as a fraction, a decimal with no more than 2 decimal places, or a percent.
2. Analyze the results of a probability experiment to make predictions and express the experimental probability as a fraction, decimal, or percent.

Goal 4. The student will conduct a probability experiment.

Objectives - The student be able to:

1. Conduct an experiment to find the experimental probability of an event.
2. Describe and compare the difference between theoretical and experimental probability.